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(54) Title: INFORMATION SYSTEM													
(57) Abstract													
<p>The system and method for displaying an electronic program schedule guide is provided. The system has areas (200) for displaying program schedule information (255). In addition, the system also has areas (220) that may be used for advertising programs, products or services. In another embodiment, the system has areas (250) for displaying messages to the user.</p>													
<p>Electric Travolta! The spirit of a decade</p> <table border="1"> <tr><td>37 ESPN</td><td>Major League Baseball</td></tr> <tr><td>17 FAM</td><td>Batman</td></tr> <tr><td>4 KRON</td><td>Fresh Prince</td></tr> <tr><td>32 PBS</td><td>Avonlea</td></tr> <tr><td>27 NICK</td><td>Ren &amp; Stimpy</td></tr> </table> <p>Free offer from RCA. Call 1-800-RCA-FREE for</p> <p>Cancel</p> <p>John Travolta in</p>				37 ESPN	Major League Baseball	17 FAM	Batman	4 KRON	Fresh Prince	32 PBS	Avonlea	27 NICK	Ren & Stimpy
37 ESPN	Major League Baseball												
17 FAM	Batman												
4 KRON	Fresh Prince												
32 PBS	Avonlea												
27 NICK	Ren & Stimpy												
<p>Best Available Copy</p> <p>Amid the flash of 70's Disco, an aspiring young dancer lands a role in a production, and jeopardizes his relationship with a young woman.</p> <p>The electric performance that defined an era, John Travolta, Cynthia Rhodes (Stereo)</p>													

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## INFORMATION SYSTEM

### CROSS REFERENCE TO RELATED APPLICATIONS

This application is a nonprovisional application of U.S. provisional patent application "ADVERTISING 'HOT ZONE' AND RELATED FEATURES," 10 U.S. Serial Number 60/016,871, filed May 3, 1996, having Brian Lee Klosterman as the inventor and assigned to StarSight Telecast, Inc; and U.S. provisional patent application "INFORMATION SYSTEM," U.S. Serial Number 60/032,038, filed November 26, 1996, having Brian Lee Klosterman and Steven Schein as the inventors and assigned to StarSight Telecast, Inc. The 60/016,871 and 60/032,038 15 applications are hereby incorporated by reference in their entirety.

### BACKGROUND OF THE INVENTION

The present invention relates generally to a program schedule guide and, more particularly, to a system and process for allowing a television viewer to 20 access on-screen television program listings and other information services in an easy and convenient way.

The number of television channels available to a user has grown dramatically within the last decade, primarily due to the availability of cable and direct broadcast satellite systems. As the number of programs of potential interest 25 to the viewer has increased, a variety of electronic program guides have been developed to help the viewer select programs of particular interest. For example, commonly assigned U.S. Patent Numbers 4,706,121 and 5,353,121 each describes schedule information processing systems which provide the viewer with a convenient way to select programs based on viewer supplied selection criteria.

Given the hectic lifestyle of today's society, a system which provides 30 other information in addition to television program schedule information would be very convenient for the busy viewer. Examples of information viewers may desire are weather information, financial information, and the like. Hence, an information

system such as a guide with regions reserved for such information would provide a valuable service to a user. Furthermore, these regions could be used for advertising or promotional purposes, which may or may not be interactive, thereby enabling more services to be provided without increasing the cost of the guide.

5

### SUMMARY OF THE INVENTION

The system and method of the present invention provides a program schedule guide with information regions for displaying additional information. Alternatively, the additional information may be provided by a separate information 10 guide, and a user may "hypertune" from the program schedule guide to the information guide, and vice versa. The information to be displayed is received by a peripheral device which can either be a stand-alone device, such as a set-top box or a web-browser box; or integrated into the user's television, VCR, computer, satellite IRD, cable box, and the like. In addition, the information may be 15 displayed on a computer screen, a television screen, or a television monitor screen.

In a preferred embodiment of the invention, the program guide interactively displays a program schedule guide and the screen contains additional non-interactive information regions which can be used for displaying advertising or promotional messages for products or programs in a static or scrolling manner. The 20 advertising may be for special programming events such as pay-per-view movies, current or upcoming programs, or for merchandise and services or messages to the user. The promotional information may relate to an individual network/broadcaster, or for a selected program, merchandise or services.

In another preferred embodiment of the invention, both the program 25 guide and the information regions are interactive with the user. The interactive information regions may also display information in a static or scrolling manner, and may contain promotional information regarding a current or up-coming program or product advertising information. In addition, if the information region contains advertising information regarding a product, the user may click on the information 30 region to see a billboard or schedule a recording of an infomercial on the product. The interactive program schedule guide and the information regions may further be combined with various other forms of information. Potential sources of additional information include news, sports, and weather. This additional information may

either be available on command by the user, or continuously displayed within an area of the program guide. In another preferred embodiment, the information is displayed in a separate information guide.

In yet another preferred embodiment, the program guide is non-  
5 interactive, however the information regions containing the advertising and promotional information are interactive and may be either static or scrolling. The user may activate icons or menu items in the information regions or click on the region itself to gain access to additional displays of advertising and promotional information. In this embodiment, the user may switch between full screen display  
10 of the guide and a partial or reduced size picture-in-picture (PIP) window display of the guide via, for example, an on screen menu with cursor or pointer control. This feature allows a user to see a large scale version of the guide, or to be able to see the guide through a PIP window while also getting a "flavor" for a currently selected show through a partial observation of the show. Preferably in this mode,  
15 the audio for the show also continues to be played.

In preferred embodiments, if an information region is interactive and displays information regarding a program, the user may click on the information region and direct tune to the program if it is currently on. Alternatively, the user may schedule automatic tuning to the program when the program comes on. If the  
20 user schedules an "autotune," the system may request confirmation from the user just prior to, or at the time of the scheduled tuning of the program. Alternatively, the system may tune to the program directly. If the program is a pay-per-view program, the system may authorize payment for the program automatically. Preferably, the system will request user confirmation before tuning to or authorizing  
25 payment of the program. In addition, the user may choose to record a current program or record a future program. To do this, the user would highlight the program desired on the information region, then choose the record option, and the system would record a current program or asks if it should schedule recording of a future program.

30 In another preferred embodiment, the advertising or promotional information may appear only during times when the user is more likely to actually be watching the program schedule guide. The guide may further contain commercial icons that allow a user to get more information about the product or

service advertised. In addition, the information displayed may change as the user moves the cursor from cell to cell in the program guide. Alternatively, the information displayed in the information regions may change after the passage of a predetermined number of seconds, regardless of user activity. Additional 5 information regions may be displayed while the user confirms that he/she desires to autotune to an upcoming program. These information regions may contain advertising for products, programs, or services and may be displayed until the user makes his/her confirmation.

10 A further understanding of the nature and advantages of the present invention may be realized by reference to the remaining portions of the specification and the drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

15 Fig. 1 illustrates a preferred embodiment of a system on which a program schedule guide according to the present invention may be displayed;

Fig. 2(a) is an illustration of a program schedule guide screen according to the present invention with program information, information icons, and information regions;

20 Fig. 2(b) is an illustration of a promotional message screen shown to the user when the user selects the information region of Fig. 2(a);

Fig. 3(a) is an illustration of a program schedule guide screen according to the present invention with program information, and information regions;

25 Fig. 3(b) is an illustration of a promotional message screen shown to the user when the user selects the information region of Fig. 3(a);

Fig. 4(a) is an illustration of an alternate embodiment of the program schedule guide screen according to the present invention with program information and an information region;

30 Fig. 4(b) is an illustration of a promotional message screen shown to the user when the user selects the information region of Fig. 4(a);

Fig. 5(a) is an illustration of an alternate embodiment of the program schedule guide screen according to the present invention with program information and an information region;

Fig. 5(b) is an illustration of a promotional message screen shown to the user when the user selects the information region of Fig. 5(a);

5 Fig. 6(a) is an illustration of an alternate embodiment of the program schedule guide screen according to the present invention with program information and an information region;

Fig. 6(b) is an illustration of an alternate embodiment of the program schedule guide screen which includes virtual channels;

10 Fig. 6(c) is an illustration of a submenu screen shown to the user when the user selects the information region of Fig. 6(a) or the virtual channel of Fig. 6(b);

Fig. 6(d) is an illustration of a data page shown to the user when the user selects one of the options shown in the submenu screen of Fig 6(c);

15 Fig. 7 is an illustration of an alternate embodiment of the program schedule guide which includes information regions;

Fig. 8 is an illustration of an alternate embodiment of the program schedule guide screen which includes information icons;

Fig. 9(a) is an illustration of an embodiment of the information guide;

10 Fig. 9(b) is an illustration of a submenu of the information guide with news highlighted;

20 Fig. 9(c) is an illustration of a news information screen;

Fig. 10(a) is an illustration of an alternate embodiment of a submenu of the information guide with sports highlighted;

Fig. 10(b) is an illustration of a sports submenu;

15 Fig. 10(c) is an illustration of a sports information screen;

Fig. 11(a) is an illustration of an alternate embodiment of the information screen with weather highlighted;

20 Fig. 11(b) is an illustration of a weather submenu;

Fig. 11(c) is an illustration of a weather information screen;

25 Fig. 11(d) is an illustration of an alternate embodiment of the weather submenu;

30 Fig. 11(e) is an illustration of an alternate embodiment of a weather information screen; and

Fig. 12 illustrates the hardware elements of a preferred embodiment of the invention.

#### DESCRIPTION OF THE PREFERRED EMBODIMENT

5 The present invention provides a schedule system which contains information regions for displaying other than television program schedule information. Fig. 1 illustrates a preferred embodiment of television/computer system 100 that displays a program schedule guide according to the present invention. As shown, system 100 includes a distribution center 110 and multiple 10 receiving locations. Distribution center 110 compiles data for a data-stream. In a preferred embodiment, this data-stream is broadcast to receiving locations 116, 118, 120, and 122; and peripheral devices that are located within the receiving locations receive the data-stream. Several methods are available for broadcasting the data-stream from distribution center 110 to receiving locations 116-122. For example, 15 satellite 115 may broadcast this data-stream within the vertical blanking interval (VBI) of a television channel (e.g., PBS) or a dedicated channel to receiving locations 116, 118, 120, and 122. Alternatively, the data may also be broadcast out of band, i.e., using non channel specific mechanisms. In another preferred embodiment, the data-stream is provided to receiving locations 116, 118, 120, and 20 122 via transmission system 113. Transmission system 113 may be, for example, optical fiber, coax cable, telephone line, over the air television broadcast, or the like.

25 In yet another embodiment, the peripheral devices receive the data-stream from, for example, a local service provider 140. Service provider 140 receives the data-stream from distribution center 110 via line 117, and broadcasts the data-stream to the receiving peripheral devices via satellite 115 (or another satellite), or via lines 119 and 113. The receiving peripheral devices may be 30 televisions 130, televisions 134, VCRs 132, VCRs 136, and/or cable, satellite IRD, web-browser or set-top boxes 138. In still further embodiments, PCTVs or personal computers may be utilized, or the data-stream may be provided to a personal computer for use with the computer and/or one or more of the above devices. Hence, the system is not dependent on hardware platforms, rather it may be a software application that may be downloaded to different systems.

In a preferred embodiment, information in the data-stream includes television schedule information, advertising information, news information, weather information, financial information, internet address linking information, and the like. The information in the data-stream may further include messages from the system operator to a specific user or to subscribers of the system in general.

5 Software applications, which may be downloaded from the distribution center or located within the peripheral devices, utilize the schedule information provided in the data-stream to generate a schedule guide. The news, weather, financial, and other information may be included in the schedule guide, or a separate information

10 guide may be generated. Advertising information and messages from the system operator to a user are included on the schedule guide, and may be included on the information guide as well. In yet another preferred embodiment, data in the front and back end of the data-stream may be compressed to send a tickler instead of a regular full screen video display. The tickler would be a PIP window, and because

15 the window size is small, the quality of the picture is sufficient even though it is generated from compressed data.

If the software applications are located within the peripheral devices, they may be stored on a computer-readable storage medium such as a RAM, disk, or other storage device. Where applicable, the computer-readable storage medium 20 may also be a ROM. If the schedule guide is in a grid format, for example, the available channels may be listed on the "y" axis and various times may be listed on the "x" axis. For more information on how the schedule system displays information, see U.S. Patent No. B1 4,706,121, U.S. Patent No. 5,479,266, and U.S. Patent No. 5,479,268. These patents, like the present patent application, are 25 assigned to StarSight Telecast, Inc., and are hereby incorporated by reference in their entirety for all purposes.

In another preferred embodiment, satellite 115 has processing capability. Hence, in addition to distribution center 110, satellite 115 may also compile data for the data-stream. This embodiment is very advantageous as it 30 ensures continued and reliable data transmission in situations where satellite 115 may not be able to receive data from distribution center 110. An example of such situations is during periods of atmospheric or terrestrial interferences, which occur when satellite 115 is in-line with distribution center 110 and the Sun. The Sun,

having immense energy, emits a lot of noise thereby interfering data transmission from distribution center 110 to satellite 115. With its own data processor, satellite 115 may continue to transmit data, hence, ensuring continued and reliable data transfer to the receiving locations. This embodiment also ensures continued and reliable data transmission when distribution center 110 is out of service.

Fig. 2 is an illustration of a program schedule guide screen according to the present invention. As illustrated, program guide screen 200 has program information, information regions for offering product and program information, and information icons for offering information such as sports, news and the like. Fig. 2 shows only two information regions, 220 and 250, although guide screen 200 may have multiple information regions. As shown in Fig. 2, cell 220 shows a promotion for NBC's program featuring Travolta. Program guide screen 200 also contains an advertisement space 250. This space can be used to provide additional advertising opportunities, an example is advertisements for a system operator. Preferably the space is used for short advertisements that change periodically, for example, on three minute intervals. An example of a suitable advertisement is "Enjoy Coke!". Here cell 250 shows an advertisement from RCA. In another embodiment the information displayed in the information regions may change as the user moves from cell to cell in the program guide. Alternatively, the information may change automatically after the passage of a predetermined number of seconds, regardless of user activity. In addition or as an alternative, there may be commercial icons to allow the user to get more information about the product or service advertised.

Information regions 220 and 250 may be color coded or otherwise visually distinguished. They may also be placed at strategic positions within the guide to better catch the user's attention. As described, when an information region contains program information, such as cell 220, the user may move the cursor to the region (or the cursor may point to the region by default) and tune to the program if it is currently on. If the program is not currently on, the user may schedule an autotune to the program when the program airs. The user may further record a current program or schedule a recording of a future program. When an information region contains product information, such as cell 250, the user may click on the information region to tune to an infomercial on the product. Alternatively, the user may schedule an autotune to the infomercial at a later time.

period, or schedule a recording of the infomercial on the product. In a two way system, which has a back-channel for transmitting information or requests from the user, the user may also order a product by clicking on an information region and providing the necessary customer information for transmission to a supplier of the product, or to the system operator (service provider).

5 Portion 240 of guide screen 200 contains cells 245. Each cell 245 indicates the channel number corresponding to the program guide cell 255 lying immediately adjacent to it in the program guide. Instead of, or in combination with the channel number, cells 245 may contain the program service name. For 10 example, a cell 245 may contain the channel number 32, the service name PBS, or both.

15 The system operator may charge television program providers an additional fee, per time slot, for promoting and featuring programs in the information regions. In this manner, the system operator may provide the guide to a user at a reduced price while providing more information. A number of different display arrangements can be used to draw the user's attention to such "special" programs. For example, the program may be listed first in the program guide, shown in a different typeface, presented in a different color, given additional space for a program description, or have some other form of graphic enhancement, 20 including animation.

Fig. 2(b) is an illustration of a promotional message screen 260. Screen 260 is shown to the user when information region 220 is interactive, and the user clicks on information region 220. Promotional screen 260 may also contain an icon to allow immediate tuning to the program described by the promotional 25 message. In addition, promotional screen 260 may contain another icon that returns the user to guide 200. Since the system operator may charge a fee for displaying such promotional information, some or all of a message portion 275 may also be used as an additional revenue source.

30 In Fig. 2(b), portion 275 contains the promotion: "Amid the flash of 70's Disco, an aspiring young dancer ...." This promotional material, which in this example would typically be provided by NBC, provides the user with several benefits. First, it allows a program to be promoted which is not currently represented in the program schedule guide. Second, portion 275 may be used to

provide further information about a specific program, such as the starring actors or a brief description of the program content, thus possibly gaining a larger viewing audience or market share. Third, by promoting a program through prominent featuring of the program in the program guide, the broadcaster may be able to 5 prevent potential viewers from becoming engrossed in a program which is to continue after the start time of the promoted program.

Portion 280 of screen 260 is used to indicate the sponsor of the promotional message shown in portion 275. The sponsor indication can be by broadcaster call letters, channel number, broadcaster name, or broadcaster insignia 10 (e.g., the NBC peacock). It is also possible to eliminate portion 280, thereby enlarging portion 275. Additional information may therefore be displayed in portion 275. Since portion 280 of screen 260 displays information regarding a program, the user may click on the information region and direct tune to the program if it is currently on. Alternatively, the user may schedule automatic tuning 15 to the program when the program comes on. If the user schedules an autotune, the system may request confirmation from the user before tuning to the program, or the system may tune to the program directly. Preferably, the system will request user confirmation before tuning to the program. If user confirmation is requested, additional information regions may be displayed until the user makes his 20 confirmation. These information regions may include advertising for products or services.

If the promoted program is a pay-per-view program, the system may authorize payment for the program automatically. Preferably, the system will request user confirmation before authorizing payment of the program. The user 25 may further choose to record the promoted program, whether it is a current program, a future program, or a pay-per-view program. If the user requests recording of a pay-per-view program, the system may ask for confirmation before authorizing payment for the program. If the user requests recording of a future program, the system may also request user confirmation. Additional information regions may also be displayed while the user confirms his/her recording request. 30

If an information region displays advertising or promotional material, the user may activate an icon, click on the region, or select a menu item to view additional information about the product or service advertised. From these

additional information displays, the user may learn more about the product or service, order the product or service, or find out where the product or service may be obtained. The additional displays would of course allow the user to return to the previous displays after the user has seen the desired information displays.

5 The invention may also allow the user to switch between full screen display and a PIP window display of the guide via, for example, an on screen menu with cursor control. This feature would allow a user to see a large scale version of the guide, or to be able to see the guide while also getting a "flavor" for a currently selected show through only partial observation of the show. Preferably in this 10 mode, the audio for the show also continues to be played.

Fig. 3(a) is an illustration of a program schedule guide screen 300 with program information 320 and interactive information regions 330 and 340. As can be seen, guide screen 300 does not contain information icons. Hence, more 15 schedule information may be shown on the screen, thereby allowing the user to access more schedule information per screen. Information region 320, like information region 220, promotes a program. In addition, it provides a brief description of the program content, thereby allowing information other than program description to be shown on promotional message screen 350 (Fig. 3(b)). As shown by Fig. 3(b), message screen 350 contains contest information, however, 20 other information related to the program may also be shown on screen 350.

Fig. 4(a) is an illustration of a program schedule guide screen 400. As shown, the user may move a cursor across region 410 to move between the different days of the week. In Fig. 4(a), the user has selected Wednesday. Hence, the schedule information displayed is for Wednesday, and the time shown is the 25 current time. The system knows what time the user is watching television, and automatically adjusts the cursor to be located on default on a cell that corresponds to the current time.

As shown, guide screen 400 has one information region 420, which is promoting a program that may be on shortly or is currently on. Information region 30 420 is interactive. Hence, if the user clicks on region 420, the user may see message screen 450 (Fig. 4(b)), which displays a description of the program content. In addition, message screen 450 may also display promotional materials about an upcoming program. This way, the system operator may indirectly promote

multiple programs on region 420. If the program is currently on, the user may click on icon 460 to tune to the program. If the program will come on shortly, the user will be tuned to the channel that corresponds to the program. Alternatively, the user may click on icon 470 to start recording the program if the program is on.

5 On occasions where the program will come on shortly, the system will start recording the program when the program comes on.

Fig. 5(a) is an illustration of a program schedule guide screen 500. As shown, guide screen 500 has one information region 520, which is interactive. Information region 520 is promoting a program that will air in the future. In this 10 case, if the user clicks on region 520, the user may see message screen 550 (Fig. 5(b)), which also displays a description of the program content. In another embodiment, message screen 500 may also contain an icon, which the user may click on to view a short video preview. This preview may be shown in a PIP window, and the preview video data may be transmitted in a compressed format. 15 As mentioned, the size of the window allows a decent video display to be generated from compressed data. Message screen 550 also displays promotional materials about an upcoming program. However, because the program will not air until a later date, message screen 550 has icon 560, which when clicked on by the user, will allow the user to schedule an autotune to the program when the program comes 20 on. Once the user has scheduled an autotune, the system will automatically tune to the program when the program airs. Preferably, user confirmation is requested before the system tunes to the program. Alternatively, the user may click on icon 570 to schedule a recording of the program. The system will automatically start recording the program when the program comes on.

25 In another embodiment, the system may automatically tune a user to a promoted program when the program comes on. This may happen whether or not the user has scheduled an autotune to the program. Preferably, the system will ask the user whether the user wishes to tune to the program before automatically tuning to the program.

30 The interactive and non-interactive information screens may both be used for displaying scrolling messages or static messages. As discussed, these information screens may be used to promote programs as well as products. In addition, the information screens may also be used to send messages to specific

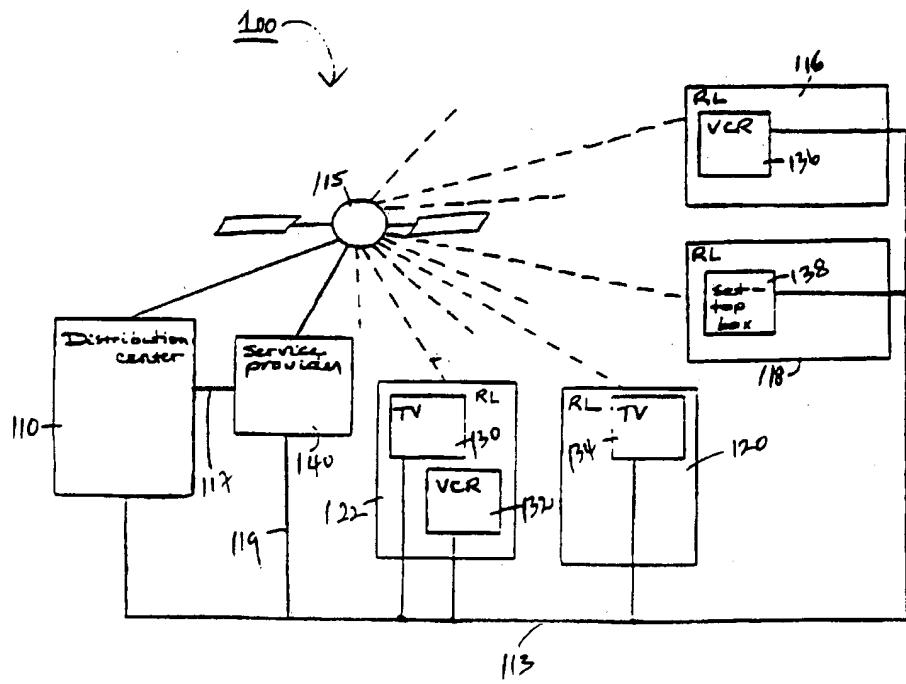


Figure 1

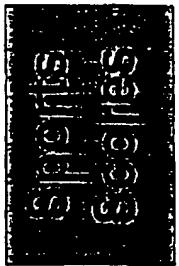
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Fig. 21a)

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